



NAVSTAR GPS Modernization

GPS Block IIR/IIF/OCS Modernization Status

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NOTICE

The JPO is awaiting formal direction to proceed and Congressional New Start approval.

All information contained in this presentation is subject to change.



IIR Modernization

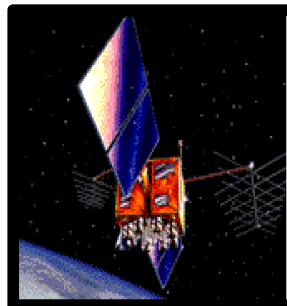


Block IIR-M Satellites



L1 Enhancements

- Double the P_y code power (-163 to -159.7 dBW)
- Double the C/A code power (-160 to -156.7 dBW)
- New M_E code at higher power than the upgraded P_y code (-158 dBW)

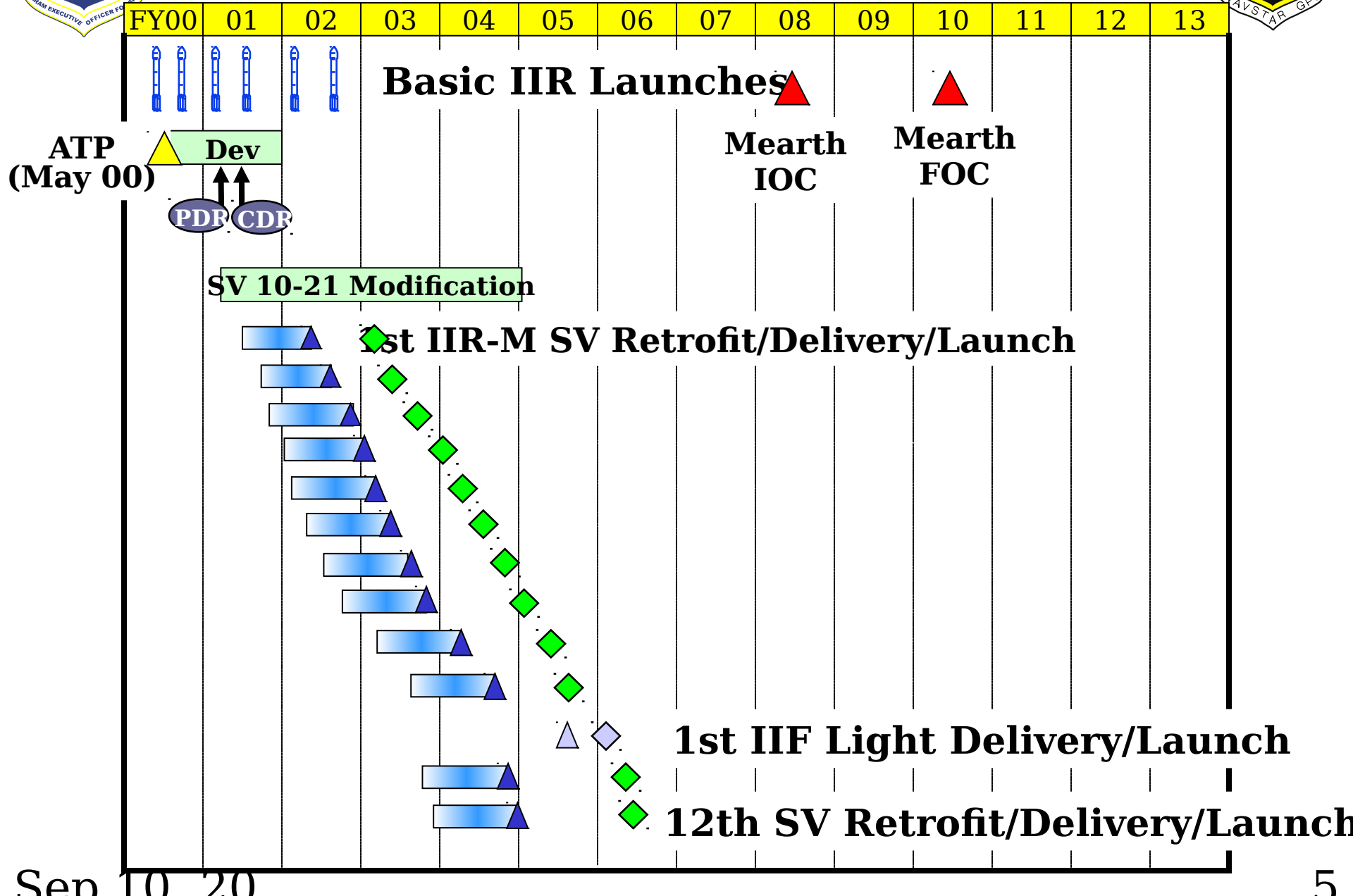


L2 Enhancements

- Quadruple the P_y code power (-166 to -159.7 dBW)
- New C/A code at double the current L1 C/A code power (-160 to -156.7 dBW)
- New M_E code at higher power than the upgraded P_y code (-158 dBW)

- 2 new military signals
- 1 new civilian signal
- No changes required to batteries or solar arrays
- Increased power on all existing navigation signals

IIR Modernization

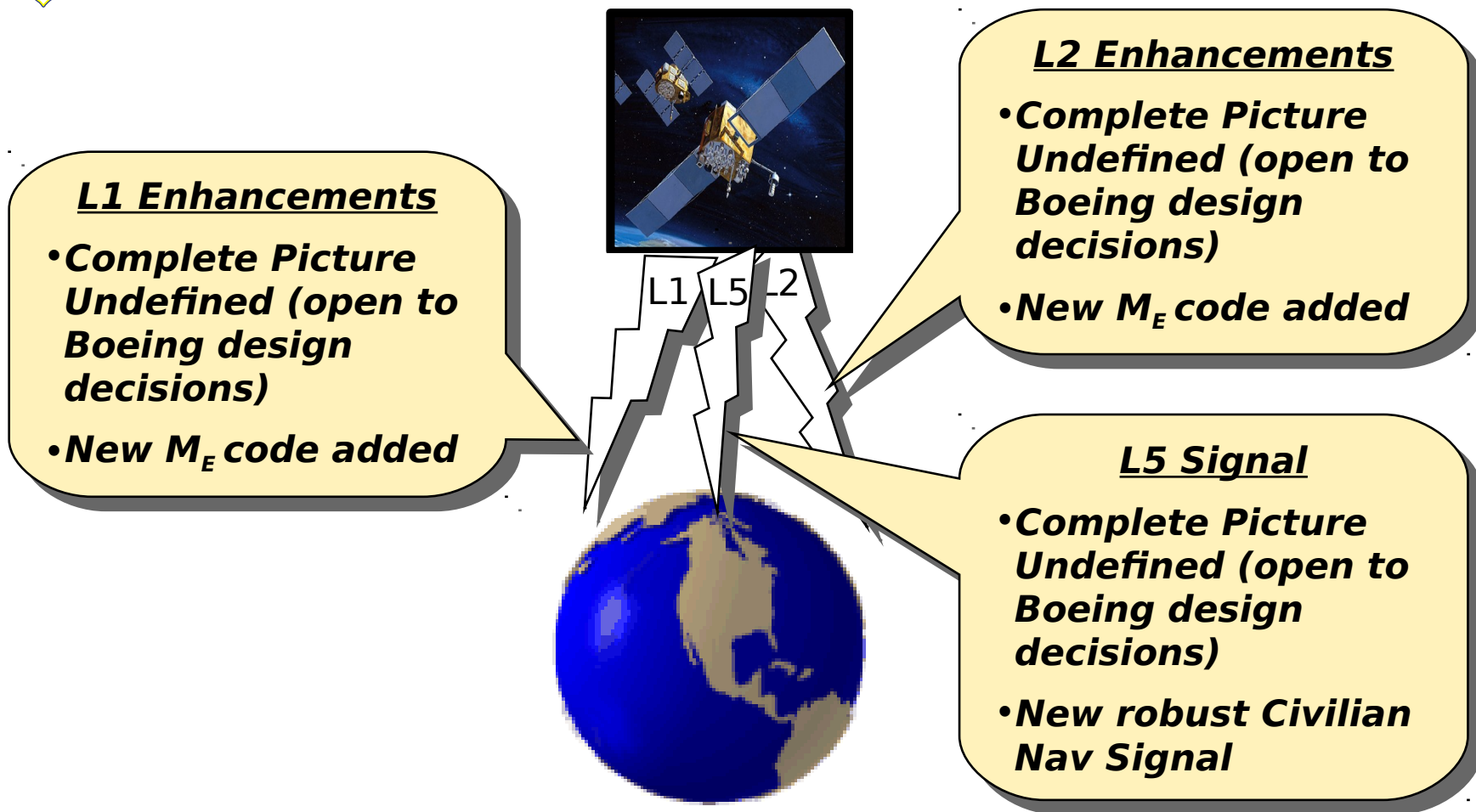




IIF Lite Modernization



IIF Lite Satellites

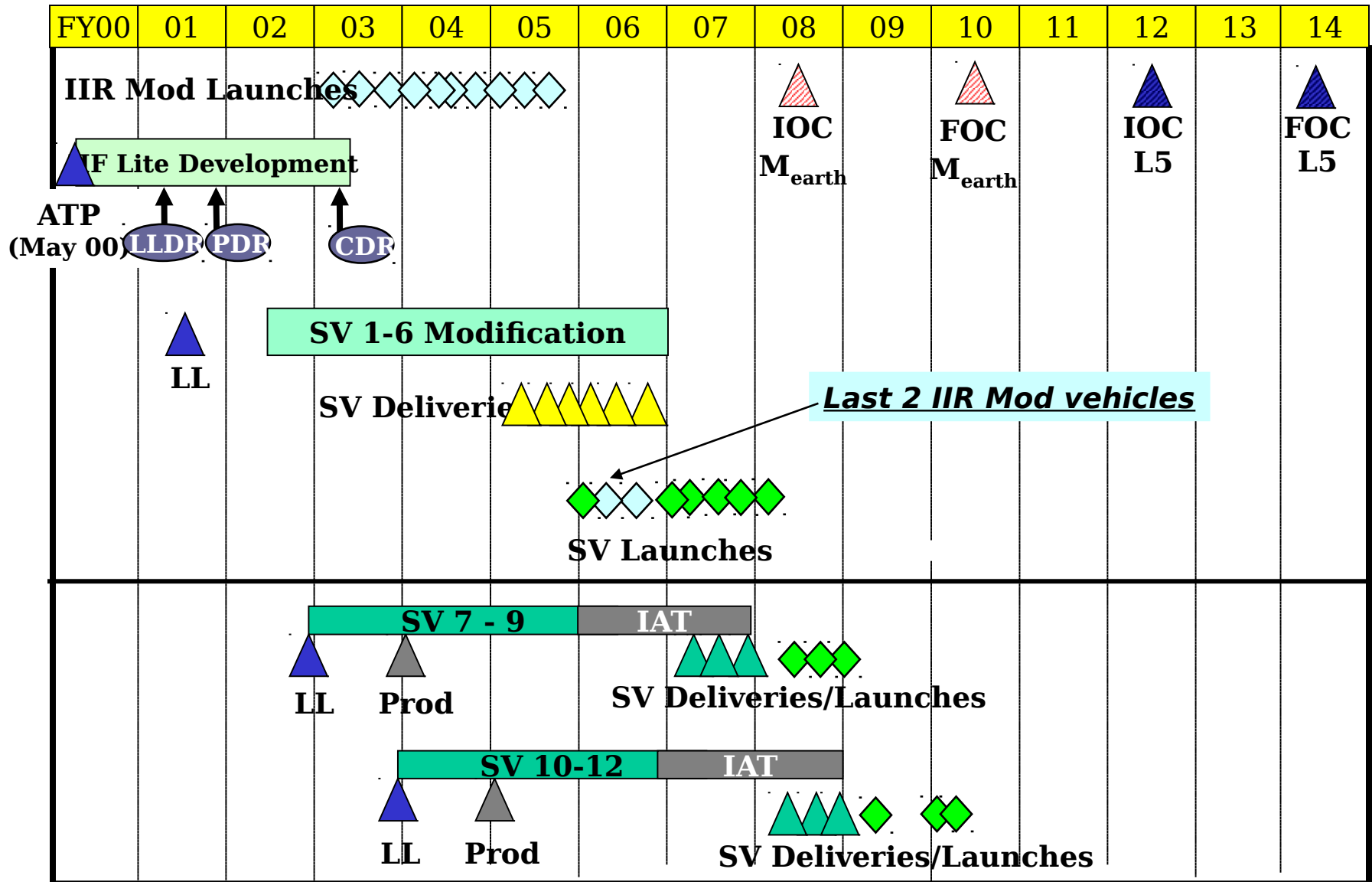


• **2 new military signals**

• **1 new civilian signal (C/A on L2 already present)**

• **Could increase power on some of these signals**

IIF Lite Modernization





Control Segment Modernization



IIR-M/IIF Lite OCS

- **IIR Mod/IIF Lite concept provides**
 - Early test capability
 - Minimal impacts to Legacy MCS system and AFSPC operations
- **Test Bed enables evaluation of MSRE hardware/ software**
- **Phased development approach in current SPI baseline schedule with minimal impact**
- **Concept analysis provided via Control Segment Study**



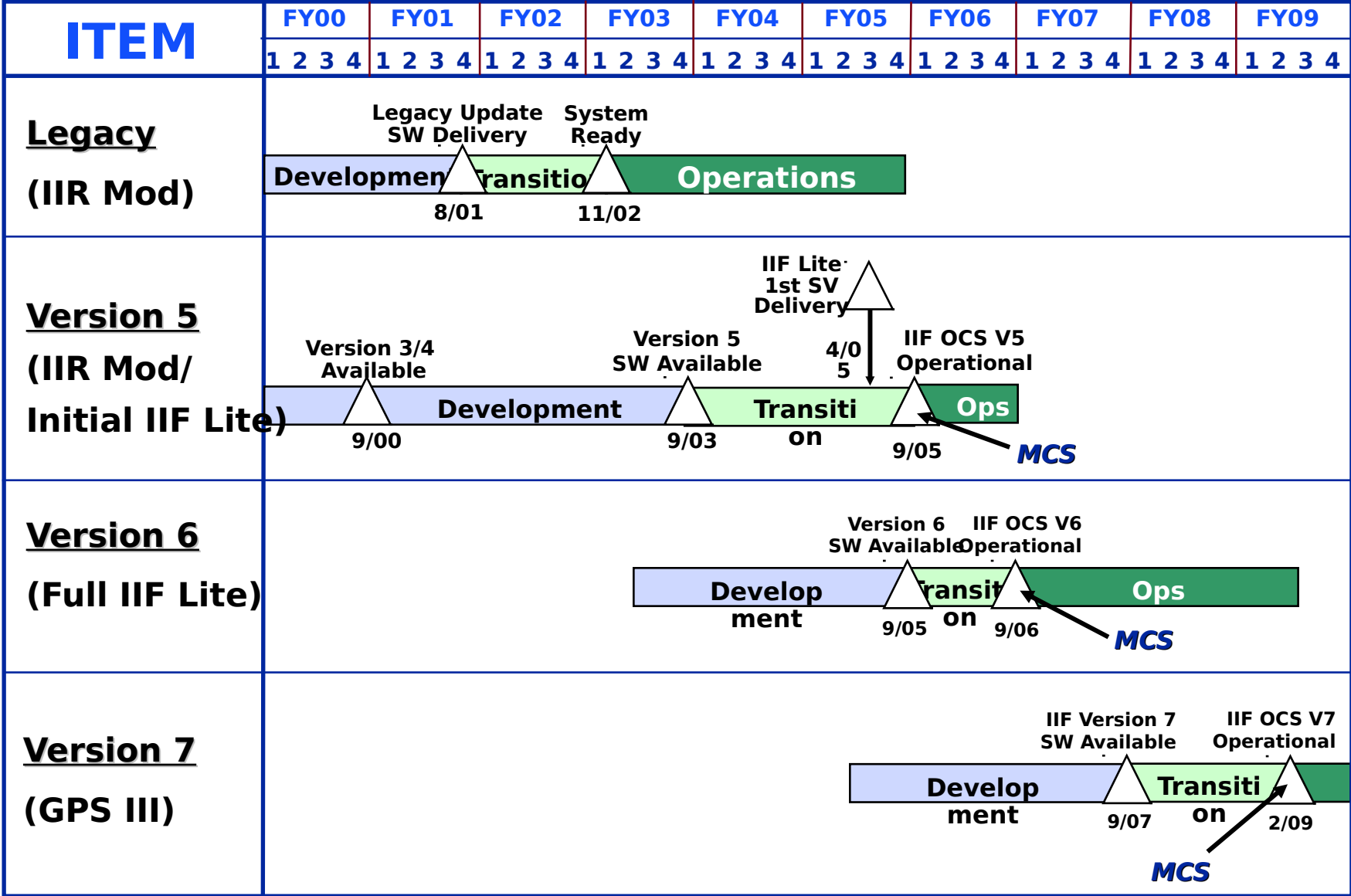


Current IIR Mod/IIF Lite Concept (cont.)



- **Recent JPO Request for a Control Segment IIR-M/ IIF Lite Study**
 - Integrated Boeing, CSC, LMM&DS and LMM&S team
 - Provides for clear definition of IIR-M/IIF Lite Control Segment concept
 - Operations Concept and program estimation/planning data
 - Legacy MCS, AEP OCS and Test Bed Update/ Development requirements
 - Test Bed to Legacy and AEP Interface requirements
 - M-code/L5 signal definition
 - MSRE Spec finalization through vendor feedback

GPS CONTROL SEGMENT SUMMARY





Summary

- **JPO ready to kick off Modernization Programs as soon as New Start is approved**
- **IIR-M/IIF Lite gets new capabilities to the users up to 8 years ahead of full modernization plan**
- **IIR-M and IIF Lite pave the way for GPS III**